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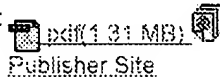
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1 [Technical papers: testing I: Improving test suites via operational abstraction](#)

Michael Harder, Jeff Mellen, Michael D. Ernst

 May 2003 **Proceedings of the 25th international conference on Software engineering**

Full text available:


 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)
[Publisher Site](#)

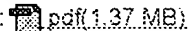
This paper presents the operational difference technique for generating, augmenting, and minimizing test suites. The technique is analogous to structural code coverage techniques, but it operates in the semantic domain of program properties rather than the syntactic domain of program text. The operational difference technique automatically selects test cases; it assumes only the existence of a source of test cases. The technique dynamically generates operational abstractions (which describe obser ...

2 [Technical papers: software testing: The impact of test suite granularity on the cost-effectiveness of regression testing](#)

Gregg Rothermel, Sebastian Elbaum, Alexey Malishevsky, Praveen Kallakuri, Brian Davia

 May 2002 **Proceedings of the 24th international conference on Software engineering**

Full text available:


 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Regression testing is an expensive testing process used to validate software following modifications. The cost-effectiveness of regression testing techniques varies with characteristics of test suites. One such characteristic, test suite granularity, involves the way in which test inputs are grouped into test cases within a test suite. Various cost-benefits tradeoffs have been attributed to choices of test suite granularity, but almost no research has formally examined these tradeoffs. To address ...

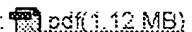
3 [A methodology for controlling the size of a test suite](#)

M. Jean Harrold, Rajiv Gupta, Mary Lou Soffa

 July 1993 **ACM Transactions on Software Engineering and Methodology (TOSEM)**,

Volume 2 Issue 3

Full text available:




 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

This paper presents a technique to select a representative set of test cases from a test suite that provides the same coverage as the entire test suite. This selection is performed by identifying, and then eliminating, the redundant and obsolete test cases in the test suite. The representative set replaces the original test suite and thus, potentially produces a smaller test suite. The representative set can also be used to identify those test cases that should be rerun to test the program ...

Keywords: hitting set, regression testing, software engineering, software maintenance, test

suite reduction

- 4 [Bi-Criteria Models for All-Uses Test Suite Reduction](#)
May 2004 **Proceedings of the 26th International Conference on Software Engineering**

Full text available:  [pdf\(168.75 KB\)](#)Additional Information: [full citation](#), [abstract](#) [Publisher Site](#)

Using bi-criteria decision making analysis, a new model for test suite minimization has been developed that pursues two objectives: minimizing a test suite with regard to a particular level of coverage while simultaneously maximizing error detection rates. This new representation makes it possible to achieve significant reductions in test suite size without experiencing a decrease in error detection rates. Using the all-uses interprocedural data flow testing criterion, two binary integer linear programm ...

- 5 [Dependence analysis in reduction of requirement based test suites](#)
Boris Vaysburg, Luay H. Tahat, Bogdan Korel
July 2002 **ACM SIGSOFT Software Engineering Notes , Proceedings of the 2002 ACM SIGSOFT international symposium on Software testing and analysis**, Volume 27 Issue 4

Full text available:  [pdf\(322.42 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Requirement-based automated test case generation is a model-based technique for generating test suites related to individual requirements. The technique supports test generation from EFSM (Extended Finite State Machine) system models. Several requirement-based selective test generation techniques were proposed. These techniques may significantly reduce a number of test cases with respect to a requirement under test as opposed to a complete system testing. However, the number of test cases may st ...

Keywords: EFSM dependence analysis, EFSM system model, interaction pattern, model-based testing, system testing, test suite reduction

- 6 [Technical papers: testing I: Constructing test suites for interaction testing](#)
Myra B. Cohen, Peter B. Gibbons, Warwick B. Mugridge, Charles J. Colbourn
May 2003 **Proceedings of the 25th international conference on Software engineering**

Full text available:  [pdf\(975.28 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#) [Publisher Site](#)

Software system faults are often caused by unexpected interactions among components. Yet the size of a test suite required to test all possible combinations of interactions can be prohibitive in even a moderately sized project. Instead, we may use pairwise or t-way testing to provide a guarantee that all pairs or t-way combinations of components are tested together. This concept draws on methods used in statistical testing for manufacturing and has been extended to software system testing. A cov ...

- 7 [Papers: TSNLP: Test Suites for Natural Language Processing](#)
Sabine Lehmann, Stephan Oepen, Sylvie Regnier-Prost, Klaus Netter, Veronika Lux, Judith Klein, Kirsten Falkedal, Frederik Fouvry, Dominique Estival, Eva Dauphin, Hervé Compagnion, Judith Baur, Lorna Balkan, Doug Arnold
August 1996 **Proceedings of the 16th conference on Computational linguistics - Volume 2**

Full text available:  [pdf\(677.10 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

The growing language technology industry needs measurement tools to allow researchers, engineers, managers, and customers to track development, evaluate and assure quality, and assess suitability for a variety of applications. The TSNLP (Test Suites for Natural Language Processing) project has investigated various aspects of the construction, maintenance and application of systematic test suites as diagnostic and evaluation tools for

NLP applications. The paper summarizes the motivation and main ...

8 Multiobjective evolutionary algorithm test suites

David A. van Veldhuizen, Gary B. Lamont

February 1999 **Proceedings of the 1999 ACM symposium on Applied computing**

Full text available:  pdf(853.72 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



9 Using test suites in evaluation of machine translation systems

Margaret King, Kirsten Falkedal

August 1990 **Proceedings of the 13th conference on Computational linguistics - Volume 2**


Full text available:  pdf(536.47 KB) Additional Information: [full citation](#), [references](#), [citations](#)



10 Middleware: Designing a test suite for empirically-based middleware performance prediction

Yan Liu, Ian Gorton, Anna Liu, Ning Jiang, Shiping Chen

February 2002 **Proceedings of the Fortieth International Conference on Tools Pacific: Objects for internet, mobile and embedded applications - Volume 10**

Full text available:  pdf(1.03 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

One of the major problems in building large-scale enterprise systems is anticipating the performance of the eventual solution before it has been built. This problem is especially germane to modern Internet-based e-business applications, where failure to provide high performance and scalability can lead to application and business failure. The fundamental software engineering problem is compounded by many factors, including application diversity, architectural trade-offs and options, COTS compone ...


Keywords: COTS, component-based system, empirical results, middleware, performance modelling, prototype



11 Vectorizing compilers: a test suite and results

D. Callahan, J. Dongarra, D. Levine

November 1988 **Proceedings of the 1988 ACM/IEEE conference on Supercomputing**

Full text available:  pdf(324.46 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


This report describes a collection of 100 Fortran loops used to test the effectiveness of an automatic vectorizing compiler. We present the results of compiling these loops using commercially available, vectorizing Fortran compilers on a variety of supercomputers, mini-supercomputers, and mainframes.



12 The camp smalltalk ANSI test suite (poster session)

Ralph Johnson, Donald MacQueen

January 2000 **Addendum to the 2000 proceedings of the conference on Object-oriented programming, systems, languages, and applications (Addendum)**

Full text available:  pdf(19.41 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Although there has been an ANSI standard for Smalltalk for some years, there has not been a verification suite for it. This has allowed the various dialects to deviate from the standard without much notice. One of the first Camp Smalltalk projects was a test suite for the ANSI standard protocols. It has several thousand tests based on SUnit, a way of testing protocol conformance, and way of reusing protocol-based tests for each of the concrete classes that is supposed to support a protocol.




13 Test scenario and regression test suite generation from Object-Z formal specification

for object-oriented program testing

Chun-Yu Chen, Richard Chapman, Kai H. Chang

April 1999 **Proceedings of the 37th annual Southeast regional conference (CD-ROM)**

Full text available:  pdf(185.97 KB) Additional Information: [full citation](#), [index terms](#)



14 A reduced test suite for protocol conformance testing

Philip J. Bernhard

July 1994 **ACM Transactions on Software Engineering and Methodology (TOSEM)**,

Volume 3 Issue 3

Full text available:  pdf(1.34 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



Keywords: heuristics

15 Generating test suites for software load testing

Alberto Avritzer, Elaine J. Weyuker

August 1994 **Proceedings of the 1994 ACM SIGSOFT international symposium on Software testing and analysis**

Full text available:  pdf(1.24 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)



16 Towards a universal test suite for combinatorial auction algorithms

Kevin Leyton-Brown, Mark Pearson, Yoav Shoham

October 2000 **Proceedings of the 2nd ACM conference on Electronic commerce**

Full text available:  pdf(494.90 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



17 A portable generic elementary function package in Ada and an accurate test suite

Ping Tak Peter Tang

September 1991 **ACM SIGAda Ada Letters**, Volume XI Issue 7

Full text available:  pdf(1.71 MB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

A comprehensive set of elementary functions has been implemented portably in Ada. The high accuracy of the implementation has been confirmed by rigorous analysis. Moreover, we present new test methods that are efficient and offer a high resolution of 0.005 unit in the last place. These test methods have been implemented portably here and confirm the accuracy of our implemented functions. Reports on the accuracy of other function libraries obtained by our test programs are also presented.



18 PIWG test results

Dale Gaumer

January 1990 **ACM SIGAda Ada Letters , Proceedings of the working group on Ada performance issues 1990**, Volume X Issue 3

Full text available:  pdf(6.68 MB) Additional Information: [full citation](#), [index terms](#)



19 An empirical study of regression test selection techniques

Todd L. Graves, Mary Jean Harrold, Jung-Min Kim, Adam Porter, Gregg Rothermel

April 1998 **Proceedings of the 20th international conference on Software engineering**

Full text available:  pdf(1.05 MB)  [Publisher Site](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



20 [An empirical study of regression test selection techniques](#)

Todd L. Graves, Mary Jean Harrold, Jung-Min Kim, Adam Porter, Gregg Rothermel

April 2001 **ACM Transactions on Software Engineering and Methodology (TOSEM)**

Volume 10 Issue 2

Full text available:  pdf (69.73 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Regression testing is the process of validating modified software to detect whether new errors have been introduced into previously tested code and to provide confidence that modifications are correct. Since regression testing is an expensive process, researchers have proposed regression test selection techniques as a way to reduce some of this expense. These techniques attempt to reduce costs by selecting and running only a subset of the test cases in a program's existing test suite. Altho ...

Keywords: empirical study, regression testing, selective retest

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Relevance scale ☐ ☐ ☐ ☐ ☐**1** [Automated-generating test case using UML statechart diagrams](#)

Supaporn Kansomkeat, Wanchai Rivepiboon

 September 2003 **Proceedings of the 2003 annual research conference of the South African institute of computer scientists and information technologists on Enablement through technology**
Full text available: [pdf\(50.67 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Software testing plays a major role in software development because it accounts for a large part of the development cost. Moreover, manual testing technique always makes a problem. Consequently, this paper proposes the automatic testing technique to solve partially the testing process. This technique can automatically generate and select test cases from UML statechart diagrams. Firstly, we transform this diagram into intermediate diagram, called Testing Flow Graph (TFG), explicitly identify flow ...

Keywords: UML specification, UML statechart diagrams, design, software testing, test generation

2 [Specification-based regression test selection with risk analysis](#)

Yanping Chen, Robert L. Probert, D. Paul Sims

 September 2002 **Proceedings of the 2002 conference of the Centre for Advanced Studies on Collaborative research**
Full text available: [pdf\(646.89 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Regression testing is essential to ensure software quality. The test team applies a regression test suite to ensure that new or modified features do not regress (make worse) existing features. Although existing research has addressed many problems and put forward solutions, most regression test techniques are *code-based*. *Code-based* regression test selection is good for unit testing, but it has a scalability problem. When the size of the subject under test grows, it becomes hard to ...

3 [UML-Based integration testing](#)

Jean Hartmann, Claudio Imoberdorf, Michael Meisinger

 August 2000 **ACM SIGSOFT Software Engineering Notes , Proceedings of the 2000 ACM SIGSOFT international symposium on Software testing and analysis**, Volume 25 Issue 5
Full text available: [pdf\(761.34 KB\)](#)
 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Increasing numbers of software developers are using the Unified Modeling Language (UML) and associated visual modeling tools as a basis for the design and implementation of their distributed, component-based applications. At the same time, it is necessary to test these


components, especially during unit and integration testing. At Siemens Corporate Research, we have addressed the issue of testing components by integrating test generation and test execution technology with commerci ...

Keywords: COM/DCOM, CORBA, UML statecharts, distributed components, functional testing, test execution, test generation

4 The AGEDIS tools for model based testing

A. Hartman, K. Nagin

July 2004 **ACM SIGSOFT Software Engineering Notes , Proceedings of the 2004 ACM SIGSOFT international symposium on Software testing and analysis**, Volume 29 Issue 4

Full text available:  pdf(250.63 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We describe the tools and interfaces created by the AGEDIS project, a European Commission sponsored project for the creation of a methodology and tools for automated model driven test generation and execution for distributed systems. The project includes an integrated environment for modeling, test generation, test execution, and other test related activities. The tools support a model based testing methodology that features a large degree of automation and also includes a feedback loop integrat ...

Keywords: UML modeling, automated test generation, coverage analysis, defect analysis, test execution framework, validation

5 Software engineering: A method for the automatic generation of test suites from object models

Alessandra Cavarra, Charles Crichton, Jim Davies

March 2003 **Proceedings of the 2003 ACM symposium on Applied computing**

Full text available:  pdf(619.89 KB) Additional Information: [full citation](#), [abstract](#), [references](#)


This paper explains how object models written in the Unified Modeling Language (UML) can be translated into formal, behavioural descriptions and used as a basis for automatic test generation. The behavioural descriptions are written in a language of communicating state machines: the Intermediate Format (IF). The translation from UML to IF is based upon an earlier formal semantics, written in the Abstract State Machine (ASM) notation. Descriptions written in IF can be automatically explored; the ...

Keywords: UML, formal methods, model based testing

6 Middleware: Designing a test suite for empirically-based middleware performance prediction

Yan Liu, Ian Gorton, Anna Liu, Ning Jiang, Shiping Chen

February 2002 **Proceedings of the Fortieth International Confernece on Tools Pacific: Objects for internet, mobile and embedded applications - Volume 10**

Full text available:  pdf(1.03 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

One of the major problems in building large-scale enterprise systems is anticipating the performance of the eventual solution before it has been built. This problem is especially germane to modern Internet-based e-business applications, where failure to provide high performance and scalability can lead to application and business failure. The fundamental software engineering problem is compounded by many factors, including application diversity, architectural trade-offs and options, COTS compone ...

Keywords: COTS, component-based system, empirical results, middleware, performance modelling, prototype

7 Projected state machine coverage for software testing

G. Friedman, A. Hartman, K. Nagin, T. Shiran

July 2002 **ACM SIGSOFT Software Engineering Notes , Proceedings of the 2002 ACM SIGSOFT international symposium on Software testing and analysis**, Volume 27 Issue 4Full text available: pdf(406.24 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Our research deals with test generation for software based on finite state machine (FSM) models of the program specification. We describe a set of coverage criteria and testing constraints for use in the automatic generation of test suites. We also describe the algorithms used to generate test suites based on these coverage criteria, and the implementation of these algorithms as an extension of the Mur ϕ v; model checker[4]. The coverage criteria are simple but powerful in that they generate te ...

Keywords: automated test generation, finite state machine modeling, state machine projection., validation

8 Technical papers: testing I: Improving web application testing with user session data

Sebastian Elbaum, Srikanth Karre, Gregg Rothermel

May 2003 **Proceedings of the 25th international conference on Software engineering**

Full text available: pdf(1.19 MB) [Publisher Site](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Web applications have become critical components of the global information infrastructure, and it is important that they be validated to ensure their reliability. Therefore, many techniques and tools for validating web applications have been created. Only a few of these techniques, however, have addressed problems of testing the functionality of web applications, and those that do have not fully considered the unique attributes of web applications. In this paper we explore the notion that user s ...

9 Static and dynamic analysis of call chains in java

Atanas Rountev, Scott Kagan, Michael Gibas

July 2004 **ACM SIGSOFT Software Engineering Notes , Proceedings of the 2004 ACM SIGSOFT international symposium on Software testing and analysis**, Volume 29 Issue 4Full text available: pdf(276.88 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This work presents a parameterized framework for static and dynamic analysis of call chains in Java components. Such analyses have a wide range of uses in tools for software understanding and testing. We also describe a test coverage tool built with these analyses and the use of the tool on a real-world test suite. Our experiments evaluate the exact precision of several instances of the framework and provide a novel approach for estimating the limits of class analysis technology for computing pr ...

Keywords: call chains, call graph, dynamic analysis, static analysis

10 Technical papers: testing II: A framework for component deployment testing

Antonia Bertolino, Andrea Polini

May 2003 **Proceedings of the 25th international conference on Software engineering**

Full text available: pdf(1.34 MB) [Publisher Site](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Component-based development is the emerging paradigm in software production, though several challenges still slow down its full taking up. In particular, the "component trust problem" refers to how adequate guarantees and documentation about a component's behaviour can be transferred from the component developer to its potential users. The capability to test a component when deployed within the target application environment can

help establish the compliance of a candidate component to the cust ...


11 Analysis and testing of Web applications

Filippo Ricca, Paolo Tonella

July 2001 **Proceedings of the 23rd international conference on Software engineering**

Full text available:  [pdf\(167.56 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

 [Publisher Site](#)

The economic relevance of Web applications increases the importance of controlling and improving their quality. Moreover, the new available technologies for their development allow the insertion of sophisticated functions, but often leave the developers responsible for their organization and evolution. As a consequence, a high demand is emerging for methodologies and tools for quality assurance of Web based systems.

In this paper, a UML model of Web applications is proposed for their ...

Keywords: UML modeling, code analysis, reverse engineering, testing, web applications

12 Web technologies and applications (WTA): WebUml: reverse engineering of web applications

Carlo Bellettini, Alessandro Marchetto, Andrea Trentini

March 2004 **Proceedings of the 2004 ACM symposium on Applied computing**

Full text available:  [pdf\(681.13 KB\)](#)


Additional Information: [full citation](#), [abstract](#), [references](#)

Web applications have become complex and crucial for many firms, especially when combined with areas such as CRM (Customer Relationship Management) and BPR (Business Process Reengineering). Since then the scientific community has focused attention to Web application design, development, analysis, testing, by studying and proposing methodologies and tools. This paper describes an automatic tool for the construction of UML models from existing Web applications. This tool, named WebUml, generates c ...

13 Programming languages and object technologies: A transition-based strategy for object-oriented software testing

Issa Traoré

March 2003 **Proceedings of the 2003 ACM symposium on Applied computing**

Full text available:  [pdf\(1.59 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

Though time-to-market has become the primary criterion that drives most current software development projects, quality still remains the key concern of critical software development projects, for which the cost of a single bug may involve serious loss or damages. Meeting the higher quality level required for such kinds of systems may be achieved only by using sound and rigorous test practices. We present in this paper an integrated platform that uses a formalized version of UML statechart as the ...

Keywords: PVS, UML, formal methods, object technology, object-oriented testing, requirements specification

14 PLI workshops: World-class product certification using Erlang

Ulf Wiger, Gösta Ask, Kent Boortz

December 2002 **ACM SIGPLAN Notices**, Volume 37 Issue 12

Full text available:  [pdf\(195.51 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

It is now ten years ago since the decision was made to apply the functional programming language Erlang to real production projects at Ericsson. In late 1995, development on the Open Telecom Platform (OTP) started, and in mid 1996 the AXD 301 project became the first user of OTP. The AXD 301 Multi-service Switch was released in October 1998, and later became "the heart of ENGINE", Ericsson's leading Voice over Packet solution. In those early


days of Erlang programming, high-level tools for develo ...

Keywords: Erlang, testing

15 World-class product certification using Erlang

Ulf Wiger, Gösta Ask, Kent Boortz

October 2002 **Proceedings of the 2002 ACM SIGPLAN workshop on Erlang**

Full text available:  pdf(162.26 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

It is now ten years ago since the decision was made to apply the functional programming language Erlang to real production projects at Ericsson. In late 1995, development on the Open Telecom Platform (OTP) started, and in mid 1996 the AXD 301 project became the first user of OTP. The AXD 301 Multi-service Switch was released in October 1998, and later became "the heart of ENGINE", Ericsson's leading Voice over Packet solution. In those early days of Erlang programming, high-level tools for develo ...

Keywords: erlang, testing

16 Evolutionary design of complex software (EDCS) demonstration days 1999

Wayne Stidolph


January 2000 **ACM SIGSOFT Software Engineering Notes**, Volume 25 Issue 1

Full text available:  pdf(1.99 MB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

This report summarizes the Product/Technology demonstrations given at Defense Advanced Research Projects Agency (DARPA) Evolutionary Design of Complex Software (EDCS) Program Demonstration Days, held 28-29 June 1999 at the Sheraton National Hotel, Arlington, VA.

17 Front matter (letters and notices)


March 2003 **ACM SIGSOFT Software Engineering Notes**, Volume 28 Issue 2

Full text available:  pdf(346.94 KB) Additional Information: [full citation](#)

18 Automated testing of POSIX standards

J. F. Leathrum, K. A. Liburdy

March 1994 **StandardView**, Volume 2 Issue 1

Full text available:  pdf(468.67 KB) Additional Information: [full citation](#), [references](#), [index terms](#)

19 Object-oriented technology: Maintaining software through intentional source-code views

Kim Mens, Tom Mens, Michel Wermelinger

July 2002 **Proceedings of the 14th international conference on Software engineering and knowledge engineering**

Full text available:  pdf(263.95 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

Maintaining the source code of large software systems is hard. One underlying cause is that existing modularisation mechanisms are inadequate to handle crosscutting concerns. We propose *intentional source-code views* as an intuitive and lightweight means of modelling such concerns. They increase our ability to understand, modularise and browse the source code by grouping together source-code entities that address the same concern. They facilitate software development and evolution, because ...

Keywords: crosscutting concerns, logic metaprogramming, modularisation, software

maintenance and evolution, validation and verification

20 [Early performance testing of distributed software applications](#)

Giovanni Denaro, Andrea Polini, Wolfgang Emmerich

January 2004 **ACM SIGSOFT Software Engineering Notes , Proceedings of the fourth international workshop on Software and performance**, Volume 29 Issue 1

Full text available:  [pdf \(1.19 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Performance characteristics, such as response time, through put and scalability, are key quality attributes of distributed applications. Current practice, however, rarely applies systematic techniques to evaluate performance characteristics. We argue that evaluation of performance is particularly crucial in early development stages, when important architectural choices are made. At first glance, this contradicts the use of testing techniques, which are usually applied towards the end of a projec ...

Keywords: distributed software architecture, middleware, performance analysis models, software performance, software testing

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-	0	skeleton adj language same transform\$6 <i>←</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/13 16:05
-	2	skeleton adj language <i>rev all</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/02/18 09:12
-	34	(transform\$6 or decompos\$6 or generat\$4) near2 description near2 tool <i>rev all</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/07 14:16
-	22	skeleton same description same tool <i>✓</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/13 16:05
-	3	generat\$4 near2 test adj suite\$2 same skeleton <i>✓</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/13 15:59
-	5	generat\$4 near2 test adj suite\$2 same (skeleton or template) <i>✓</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/13 16:00
-	8	(skeleton or template) adj language same transform\$6 <i>✓</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/13 16:05
-	284	(skeleton or template) same description same tool <i>Scan all</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/13 16:17